EXHIBIT B

Patent Claims Analysis
of
US9432452
"Systems and methods for dynamic networked peer-to-peer content distribution"

against
VOCAL

US9432452B2
United States

Inventor William James Gibson, Juan Royston Benito, Jason Philip Henry Bradicich

Current Assignee Cooperative Entertainment Inc

Worldwide applications

2013 US

14/023,172	**Claims priority from a provisional application**	61/699,083	09/10/2012

Total patentTerm Adjustments
arrow_upward
196days

CLAIMS

5. A method for virtualized computing peer-based content sharing comprising the steps of:

providing at least one content delivery server computer constructed and configured for electrical connection and communication via at least one communications network;

providing at least one peer-to-peer (P2P) dynamic network including a multiplicity of peer nodes constructed and configured for electronic communication over the at least one P2P dynamic network, wherein the multiplicity of peer nodes consume the same content within a predetermined time, wherein the at least one P2P dynamic network is based on at least one trace route, wherein the multiplicity of peer nodes is distributed outside controlled networks and/or content distribution networks (CDNs) that are included within the at least one communications network;

the at least one content delivery server computer receiving at least one content request from a client;

the at least one content delivery server computer segmenting requested content based on CDN address resolution, trace route to CDN and the P2P server manager, dynamic feedback from peers reporting traffic rates between individual peer and its neighbors, round-robin, and other server side scheduling/resource allocation techniques;

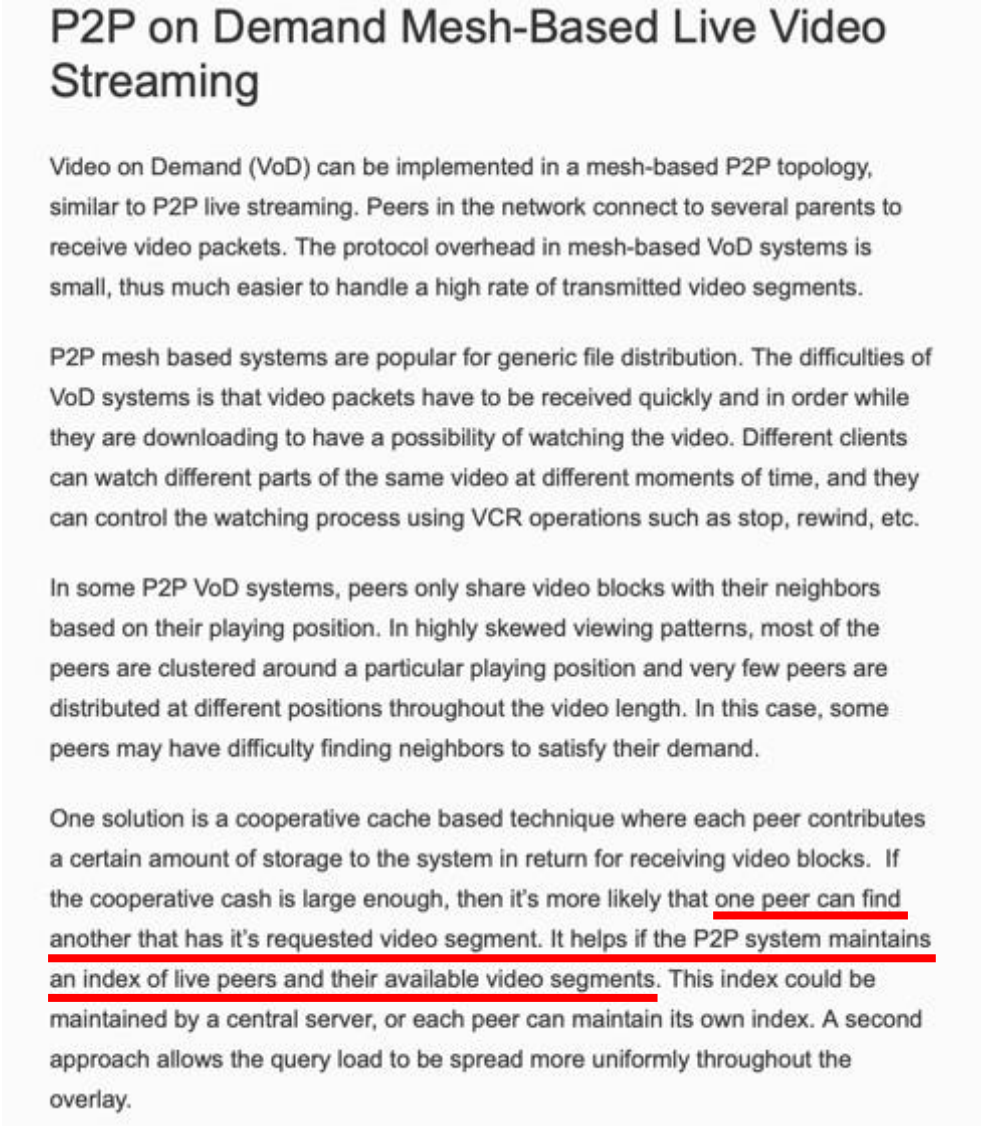
automatically identifying at least one peer node having at least one segment of the requested content in close network proximity to the client; and

at least one peer node most proximal to the client sharing the at least one segment of the requested content.

Row	Claim Element	Contention
5.0	5. A method for virtualized computing peer-based content sharing comprising the steps of:	***VOCAL*** *implements the method for virtualized computing peer-based content sharing.*  <*https://www.vocal.com/*> *© 2017*
5.1	providing at least one content delivery server computer constructed and configured for electrical connection and communication via at least one communications network;	***VOCAL*** *provides at least one* ***content delivery server computer constructed and configured for electrical connection and communication via at least one communications network*** *[****"interactions between a requesting peer, its neighbors and the server"****].* One technique for handling interactions between a requesting peer, its neighbors and the server is the following: • First, the requesting peer sends a request to the server for the desired video. • The server sends back the starting time of the latest regular channel that is streaming the video from the server. • The requesting peer then requests a patching stream from a neighboring peer to compensate for the initial missing part of the video. • If a neighbor is able to provide this stream, then the requesting peer receives the patching stream from this peer and the regular stream from the base station. • Otherwise, the requesting peer receives both the regular and patching streams from the base station. <*https://www.vocal.com/video/mobile-video-on-demand/*>*© 2017*

5.2	providing at least one peer-to-peer (P2P) dynamic network including a multiplicity of peer nodes constructed and configured for electronic communication over the at least one P2P dynamic network, wherein the multiplicity of peer nodes consume the same content within a predetermined time, wherein the at least one P2P dynamic network is based on at least one trace route, wherein the multiplicity of peer nodes is distributed outside controlled networks and/or content distribution networks (CDNs) that are included within the at least one communications network;	***VOCAL*** *provides at least one* ***peer-to-peer (P2P) dynamic network including a multiplicity of peer nodes constructed and configured for electronic communication over the at least one P2P dynamic network*** *[****"P2P mobile VoD"****], wherein the multiplicity of peer nodes consume the same content within a predetermined time, wherein the at least one P2P dynamic network is based on at least one* ***trace route*** *[****"It only keeps information about which segments are stored on which clients"****], wherein the* ***multiplicity of peer nodes is distributed outside controlled networks and/or content distribution networks (CDNs)*** *that are included within the at least one communications network [****"Each client submits a request for video delivery to the control server"****].* **P2P Mobile VoD** P2P mobile VoD allows a moving client to receive streaming data on demand from other moving clients using multicast VoD technology. Video content is divided into equal sized segments and the segments are broadcast from the parent peer. This eliminates the unicast and multicast routing protocol overheads. Content segmenting lets multiple clients share the responsibility for providing all video content. A control server controls the video content segmentation and delivery. The control server does not store or deliver any video content. It only keeps information about which segments are stored on which clients. Each client submits a request for video delivery to the control server. The server does a search for clients that have the requested video segment, and forwards the request to one of those clients. That client then sends the requested video segment to the requesting client. <*https://www.vocal.com/video/mobile-video-on-demand/*>*© 2017*
5.3	the at least one content delivery server computer receiving at least one content request from a client;	*the at least one* ***content delivery server computer receiving at least one content request from a client*** *[****"the requesting peer sends a request to the server for the desired video"****].* One technique for handling interactions between a requesting peer, its neighbors and the server is the following: • First, the requesting peer sends a request to the server for the desired video. • The server sends back the starting time of the latest regular channel that is streaming the video from the server. • The requesting peer then requests a patching stream from a neighboring peer to compensate for the initial missing part of the video. • If a neighbor is able to provide this stream, then the requesting peer receives the patching stream from this peer and the regular stream from the base station. • Otherwise, the requesting peer receives both the regular and patching streams from the base station. <*https://www.vocal.com/video/mobile-video-on-demand/*>*© 2017*

5.4	the at least one content delivery server computer segmenting requested content based on CDN address resolution, trace route to CDN and the P2P server manager, dynamic feedback from peers reporting traffic rates between individual peer and its neighbors, round-robin, and other server side scheduling/resource allocation techniques;	*the at least one* ***content delivery server computer segmenting requested content based on CDN address resolution, trace route to CDN and the P2P server manager, dynamic feedback from peers reporting traffic rates between individual peer and its neighbors, round-robin, and other server side scheduling/resource allocation techniques*** *[****"If a neighbor is able to provide this stream, then the requesting peer receives the patching stream from this peer"****].* One technique for handling interactions between a requesting peer, its neighbors and the server is the following: • First, the requesting peer sends a request to the server for the desired video. • The server sends back the starting time of the latest regular channel that is streaming the video from the server. • The requesting peer then requests a patching stream from a neighboring peer to compensate for the initial missing part of the video. • If a neighbor is able to provide this stream, then the requesting peer receives the patching stream from this peer and the regular stream from the base station. • Otherwise, the requesting peer receives both the regular and patching streams from the base station. <*https://www.vocal.com/video/mobile-video-on-demand/*>*© 2017*
5.5	automatically identifying at least one peer node having at least one segment of the requested content in close network proximity to the client; and	***Fastly*** *automatically identifies at least one* ***peer node having at least one segment of the requested content in close network proximity to the client*** *[****"one peer can find another that has it's requested video segment. It helps if the P2P system maintains an index of live peers and their available video segments"****].*



P2P on Demand Mesh-Based Live Video Streaming

Video on Demand (VoD) can be implemented in a mesh-based P2P topology, similar to P2P live streaming. Peers in the network connect to several parents to receive video packets. The protocol overhead in mesh-based VoD systems is small, thus much easier to handle a high rate of transmitted video segments.

P2P mesh based systems are popular for generic file distribution. The difficulties of VoD systems is that video packets have to be received quickly and in order while they are downloading to have a possibility of watching the video. Different clients can watch different parts of the same video at different moments of time, and they can control the watching process using VCR operations such as stop, rewind, etc.

In some P2P VoD systems, peers only share video blocks with their neighbors based on their playing position. In highly skewed viewing patterns, most of the peers are clustered around a particular playing position and very few peers are distributed at different positions throughout the video length. In this case, some peers may have difficulty finding neighbors to satisfy their demand.

One solution is a cooperative cache based technique where each peer contributes a certain amount of storage to the system in return for receiving video blocks. If the cooperative cash is large enough, then it's more likely that one peer can find another that has it's requested video segment. It helps if the P2P system maintains an index of live peers and their available video segments. This index could be maintained by a central server, or each peer can maintain its own index. A second approach allows the query load to be spread more uniformly throughout the overlay.

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5.6	at least one peer node most proximal to the client sharing the at least one segment of the requested content.	*at least one* ***peer node most proximal to the client sharing the at least one segment of the requested content*** *[**"query load to be spread more uniformly throughout the overlay"**].* **P2P on Demand Mesh-Based Live Video Streaming** Video on Demand (VoD) can be implemented in a mesh-based P2P topology, similar to P2P live streaming. Peers in the network connect to several parents to receive video packets. The protocol overhead in mesh-based VoD systems is small, thus much easier to handle a high rate of transmitted video segments. P2P mesh based systems are popular for generic file distribution. The difficulties of VoD systems is that video packets have to be received quickly and in order while they are downloading to have a possibility of watching the video. Different clients can watch different parts of the same video at different moments of time, and they can control the watching process using VCR operations such as stop, rewind, etc. In some P2P VoD systems, peers only share video blocks with their neighbors based on their playing position. In highly skewed viewing patterns, most of the peers are clustered around a particular playing position and very few peers are distributed at different positions throughout the video length. In this case, some peers may have difficulty finding neighbors to satisfy their demand. One solution is a cooperative cache based technique where each peer contributes a certain amount of storage to the system in return for receiving video blocks. If the cooperative cash is large enough, then it's more likely that one peer can find another that has it's requested video segment. It helps if the P2P system maintains an index of live peers and their available video segments. This index could be maintained by a central server, or each peer can maintain its own index. A second approach allows the query load to be spread more uniformly throughout the overlay. <*https://www.vocal.com/video/p2p-on-demand-mesh-based-live-video-streaming/*> © *2017*